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Award Number: MIPR 0EC5DYM0080

TITLE: LRMC Remote Teleretinology and Teleophthamology Project

PRINCIPAL INVESTIGATOR: Erik Kobylarz

CONTRACTING ORGANIZATION: Landstuhl Regional Medical Center
APO AE, 98180

REPORT DATE: October 2001

TYPE OF REPORT: Final

PREPARED FOR: U.S. Army Medical Research and Materiel Command
Fort Detrick, Maryland 21702-5012

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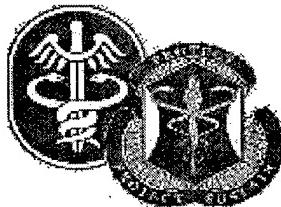
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REPORT DOCUMENTATION PAGE

*Form Approved
OMB No. 074-0188*

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing this collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503

1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE	3. REPORT TYPE AND DATES COVERED	
	October 2001	Final (15 Feb 00 - 30 Sep 01)	
4. TITLE AND SUBTITLE		5. FUNDING NUMBERS	
LRMC Remote Teleretinology and Teleophthalmology Project		MIPR 0EC5DYM0080	
6. AUTHOR(S) Erik Kobylarz			
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Landstuhl Regional Medical Center APO AE, 98180 E-Mail:		8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) U.S. Army Medical Research and Materiel Command Fort Detrick, Maryland 21702-5012		10. SPONSORING / MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES			
12a. DISTRIBUTION / AVAILABILITY STATEMENT Approved for Public Release; Distribution Unlimited		12b. DISTRIBUTION CODE	
13. ABSTRACT (Maximum 200 Words)			
14. SUBJECT TERMS		15. NUMBER OF PAGES 8	
		16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified	20. LIMITATION OF ABSTRACT Unlimited



DHP RFS Final Report



LRMC REMOTE TELERETINOLOGY AND TELEOPHTHALMOLOGY PROJECT
Proposal Number: 1999000268

Erik Joseph Kobylarz MD, PhD

Abstract

Problems

The main problem we have encountered is likely (and hopefully) unique to ERMC. It required an extraordinarily long period of time for the Topcon Digital Ophthalmic Imaging System to be delivered to LRMC (from 2/2000 when the funding was approved until the end of 7/2000). Unfortunately, this delayed the initiation of this project. The local Medical Logistics unit is located at Baumholder ACH, located more than 1 hour north of LRMC. Despite numerous e-mails and phone calls by me and the NCOIC of the LRMC ophthalmology clinic, the delivery of the imaging apparatus could not be expedited.

There also exists a significant learning curve and variation of the technicians' abilities for use of the camera. However, at this time, the ophthalmic technologists have undergone significant improvement and appear to be adept at using the Topcon digital imaging system.

We have had difficulties with getting our camera connected to the hospital LAN system by our local IMD. Despite numerous requests by me and the eye clinic staff, this has yet to be accomplished. It is hoped that this will be performed in the near future. In the interim, we utilized floppy disks to transfer the studies between the Topcon camera and our desktop computers, which are connected to the LAN.

Unfortunately, our local logistics department lost control of the balance of funding after the purchase of the Topcon camera (~\$10,000). This balance was returned to MEDCOM at the end of FY 00. We had requested the purchase of another camera, a non-mydriatic fundus camera, which we wanted to deploy for use downrange. Their processing of this purchase request took far too long and the FY 00 deadline was surpassed. This occurred beyond my control despite my every effort to avoid this mishap.

The last problem is the one I feel undermines the development of the AFMDD-wide

~~The last problem is the one that determines the development of the system.~~

telemedicine program to its fullest extent. Despite my repeated requests for time allotted during the normal work week for my T-med activities, I have on every occasion been denied this by the local ERMC and LRMC command. I serve as a full time clinical neurologist (one of 3 in ERMC) and neuro- ophthalmologist (the only one within ERMC). As you might imagine, this occupies all of my work time (and then some!). Besides the commitment to the ERMC T-med program with funding, EUCOM must provide us with adequate time for our T-med related work, particularly if it becomes one of our significant assigned duties, as it has in my case as the ERMC/LRMC Clinical T-med Consultant. By denying us adequate time to perform this work, they are jeopardizing the program and cannot ever expect it to be as successful as they would like. It should not be expected that I should do this job on my own time, as I ended up needing to do. In addition, it cannot be assumed that program will flourish by mere funding alone.

Deliverables

- 1. Clinical - Diagnostic** - The time to diagnosis has certainly been reduced through the use of this imaging system. We have immediate results of the fluorescein angiogram studies we perform as well as instant digital photographs we can temporally compare with those taken previously to assess and monitor the patients' ophthalmologic disease processes.
 - 2. The above benefit has certainly helped expedite the appropriate administration of care to our patients.**
 - 3. Budgetary** - See below. Each of the aeromedical evacuations we have avoided has saved at least \$1000 transportation cost plus TDY funding and lost days of productivity for the military member.
 - 4. The providers have expressed their great satisfaction with the imaging system. Specific comments from them are shown below.**
 - 5. There certainly exists AMEDD-wide applicability for this project for MEDCENS which serve similarly geographically dispersed patient populations, such as Tripler AMC.**
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Expenditures

	3Q FY 00	4Q FY 00	1Q FY 01	2Q FY 01	
Element of Resource (EOR)	Apr 1 - May 31	Jun 1 - Sep 30	Oct 1 - Dec 31	Jan 1 - Mar 31	TOTALS
Travel 2100	0.00	0.00	0.00	0.00	0.00
Shipping 2200	0.00	0.00	0.00	0.00	0.00
Rent & Communications 2200	0.00	0.00	0.00	0.00	0.00
Contract for Services 2500	0.00	0.00	0.00	0.00	0.00
Supplies 2600	0.00	0.00	0.00	0.00	0.00
Equipment 3100	70,000.00	0.00	0.00	0.00	70,000.00
GRAND TOTALS	70,000.00	0.00	0.00	0.00	70,000.00

Financials

Our only expenditures for this project were those for the Topcon digital ocular fundus camera (\$70,000).

Our local logistics department lost control of the balance of this P8 grant due to their inaction, which resulted in passing the deadline for FY 00 funding (see problems section).

Final Results

- 1. The use of the Topcon digital ocular fundus camera here at LRMC resulted in avoiding more than 15 aeromedical evacuations during the past 10 months. This represents a savings of more than \$15,000 transportation costs, \$2500 lodging costs, and \$10,000 per diem costs. These figures are doubled if the patient is accompanied by a significant other. This figure does not even account for the days of work productivity lost during the trip to CONUS.**
- 2. 292 patients had digital fundus photos taken at LRMC during the past 10 months. 45 of these patients also had digital fluorescein angiograms taken. The photograph and slide developing costs for these studies amounts to more than \$1000. Digital photography saves at least this amount for photo processing costs.**
- 3. It should be emphasized that the above cost savings are those for a relatively short period of time (only 10 months). At this rate, the camera will pay for itself certainly within the next year. The intangible benefits of this camera are many. They are described below and in the comments section.**
- 4. The noted ophthalmologic subspecialty areas where the digital ocular fundus have helped us the most are retina, followed by both glaucoma and neuro-ophthalmology. Retina specialists are located remotely from us. We have even avoided aeromedical evacuating patients with these disease processes since having this camera in our clinic.**
- 5. Monitoring the optic disc appearance with glaucomatous and neuro-ophthalmologic processes with the digital camera is extremely useful. This has helped our management of these disease processes immeasurably.**
- 6. The patients have been provided with copies of their ocular fundus photos on floppy disks, particularly when they are PCS'ing. (The digital ophthalmologic patient record is alive and well in ERMC!) This was difficult to do in the past since a significant lag time existed between photographing and receiving the developed photos and slides. Many of our patients had already departed from ERMC beforehand.**

Projected Costs

This project was sufficiently funded to achieve our objectives. We were able to purchase the appropriate camera.

However, the \$10,000 we never spent could have been used to fund my TDY trip to the ATA conference this year, as well as to purchase other equipment. We would have liked to purchase a fundus camera for use downrange in the Balkans. The poor correspondence between the timing of the ATA conference and the P8 FY makes it difficult to use the P8 monies for this TDY trip.

Comments

Some of the comments from the providers who utilized the digital fundus camera are shown below:

- 1. The digital fundus camera has been an invaluable addition to our eye clinic. It is difficult to imagine not having such an apparatus available to us. To be able to view our photos and angiogram studies instantly has certainly revolutionized our practice of ophthalmology. Being able to more effectively compare serial examinations by having the old photos in front of us certainly helps us with assessment and management of our patients.**
- 2. The digital fundus camera is a definite improvement over a comparable analog system due to its immediate turnaround time, e-mail compatibility, high quality digital images and excellent filing and retrieval capabilities.**
- 3. One can order as many photographs as they desire and delete those which are of poor quality.**
- 4. Technicians can be trained without wasting funds on film and supplies. They have instant feedback from the photographs they take, which leads to a steeper learning curve with their training.**
- 5. We can demonstrate to the patient on the monitor what we are seeing in their examinations and much more effectively educate them about their disease processes.**
- 6. The camera works so well for evaluating and documenting pathology in the posterior eye, we would like to purchase an adaptor for photographing the anterior segment also.**
- 7. By being able to send the digital photos to ophthalmologic subspecialists elsewhere, we can receive rapid feedback and more expeditiously and adeptly manage eye disease processes locally.**
- 8. Although LRMC is not a training facility, this digital ocular fundus camera can serve as an excellent teaching tool for students and residents rotating through ophthalmology clinics.**
- 9. Sample digital photographs will be demonstrated in the powerpoint presentation at the upcoming ATA conference.**

TATRC Scientific Review

TATRC Acquisition Review

Supporting Graphs/Charts

No Attachments